



## MSHA's Accident Prevention Program Safety Idea



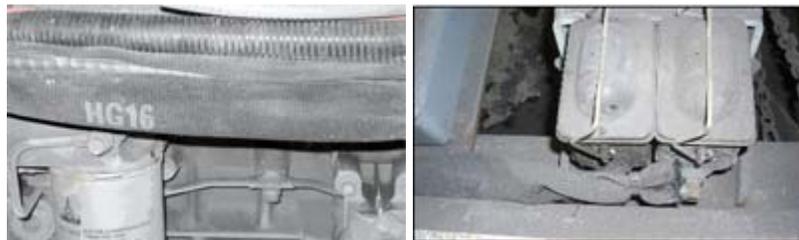
### Potential Incident - Steel Brake Lines

The underground mine environment can cause rapid corrosion and failure of steel components. Braking systems on mobile diesel powered vehicles used in underground coal mines can include automotive type steel brake lines. A non-fatal accident occurred with a diesel mantrip when a hole in a steel brake line allowed for a loss of brake fluid and a subsequent braking system failure. An MSHA inspector became concerned with the steel brake lines on a similar type mantrip that were wrapped with a nylon protective sleeve. The sleeve was installed to prevent the spraying of hydraulic brake fluid onto a hot engine surface (§75.1909(a) (10)) and to prevent rubbing of the steel lines with other surfaces. Corrosion of steel brake lines can be accelerated if moisture is held in contact with the steel line by the sleeve.

Mine operators must ensure that diesel powered machines are maintained in safe condition or removed from service (§75.1914(a)). Inspection of the brake lines for corrosion or cracking should be done on a regular basis and repaired as necessary. Proper inspection is not possible without removing the sleeve if installed.

A way to prevent brake line failures due to the corrosive mine environment is to install stainless steel or copper-nickel 90-10 tubing (SAE J1650). New machines should be purchased with corrosion-resistant brake lines. Mine operators should consult the machine manufacturer prior to any field changes to a machine's brake system since these changes could introduce other hazards.

The following guidelines can also help reduce brake line failures (SAE J1047). Protect brake lines from: rock/gravel impact; hoist or towing fixture damage; abrasion from vibrating or rotating components; and the exhaust system or other sources of extreme heat. Also make plans for brake line inspection when using coverings that can hold moisture/mud.



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